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## ORIGINAL ARTICLES.

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### EXTRACTION OF CATARACT IN THE CAPSULE.

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BELFAST.

That extraction of the lens in the capsule is the ideal method of dealing with cataract has been admitted by all ophthalmic surgeons since operations for cataract were first attempted, and many have tried to raise the subject from the plane of mere academic interest and occasional involuntary accomplishment to that of practical ophthalmic surgery.

Various methods have been adopted hitherto and all have failed to satisfy the profession that they were any improvement on the ordinary operation and most of them have been given up even by their introducers.

These methods have been roughly of three classes:

(1) Direct pulling out of the lens by means of hook, forceps, or wire loop.

(2) Dislocation of the lens before extraction; this has been done after the completion of the corneal incision by pressing on one border so as to turn the lens completely over and make it come out posterior surface foremost, by dislocating it into the anterior chamber by means of probe passed behind it through the sclerotic; and by detaching the lens from the zonule of Zinn by means of a curved sharp instrument called a zonulotome.

(3) Delivery of the lens by means of a spoon passed behind

it into the vitreous as was practised to some extent by Pagenstecher. From *a priori* reasons the first two methods are destined to failure. The lens capsule is an exceedingly delicate membrane—how delicate only those who have tried intra-capsular extraction, especially of a swollen lens, can appreciate—and direct force of such strength as to accomplish the desired effect is almost certain to either rupture it or injure it so much that it tears when the lens is being expressed. The result attained is exactly what the operator wished to avoid, he has only succeeded in performing the ordinary operation by a more complicated method and has exposed the eye to the risks of sepsis and traumatism from so much intra-ocular manipulation.

The third method deserves more notice, though it has been given up by Pagenstecher himself, owing to the frequency of rupture of the capsule and prolapse of vitreous.

A slight modification of this method, which I shall describe later, has to be adopted in certain cases at Major Smith's clinic and has given excellent results. In the light of the experience gained in this procedure I believe that the failure of Pagenstecher's method was due to the facts that he had no special means of dealing with intumescent and ripe swollen lenses, which are exceedingly liable to burst owing to the stretched and tense condition of their capsules: that his method of using the spoon inflicted more damage on the contents of the eye, than does the method used at Jullundur; and that much of escape of vitreous was due to the pressure of the lids not being properly kept off the globe.

This list of operations is sufficient to show the amount of importance surgeons have attached to the intra-capsular removal of the lens, and the amount of dissatisfaction they have felt with the results of the capsulotomy operation.

A solution of the difficulty of extraction in the capsule has been found in the Indian method of dislocation and expulsion of the lens by means of pressure on the cornea, so that no direct pressure is put on the lens which is forced out of the eye by the counterpressure exerted by the contents of the globe. In Major Smith's hands this operation has proved a success beyond the dreams of ophthalmic surgery, and has made cataract extraction almost the simple, safe and effective operation that the public unfortunately believe it to be. Hitherto this operation has not proved so successful with other surgeons as it has with Major Smith and the main object of the present paper is to show that others can get almost as good results.

Working under the personal supervision of Major Smith, as an absolute beginner at cataract extraction by any method I have had the following experience:

Number of cases	Escape of vitreous	Iritis	Poor vision (below %)o	Capsule left behind	Suppuration	Expulsive hæmorrhage
260	14	4	11	8	2	1
1.1%	5.1%	1.5%	4.2%	3%		

And I do not stand alone in obtaining such results by this method. I have seen Captain McKechnie do about 300 out of his total of 500 of these operations and know that his results especially as regards freedom from after complications such as iritis and suppuration are better than these.

These figures require a few words of explanation and criticism. Of course as a beginner under the care of a teacher my cases were at first, to some extent, chosen for me, and not until I had done about a hundred had I acquired the necessary amount of experience and dexterity to do cases simply as they turned up. At first too I failed to dislocate some of the lenses without using an unjustifiable amount of force and had to give up; had I persevered with such cases disaster would probably have been the result, so that when we take into account such cases and the fact that the first hundred were more or less selected, it is evident that these figures are much above those that a beginner doing all sorts of cases and especially one merely from a book description of it might reasonably expect to have. It might be argued that for the same reason they are not suitable statistics and are too flattering to the intra-capsular operation, but closer analysis shows that it is not so: half the vitreous escapes, one suppuration and the one bad case of iritis occurred in the first hundred, so that if you take the last 160 as the proper cases for statistical purposes, seeing that they were done without the slightest attempt at selection and without any help whatsoever, the figures would be more flattering still.

The after history of the fourteen cases of vitreous escape was:

Good vision, 9; suppuration, 1; hæmorrhage, 1; iritis, 1; poor vision due to capsule left behind, 1.

Four of the escapes occurred in the attempt to remove with iris forceps the remains of capsules which had ruptured. This procedure often results in the escape of a bead of vitreous and the one case of severe iritis followed it.

The expulsive hæmorrhage was peculiar, and I do not believe

it was the result of escape at all; the escape was slight, not more than a drop, and the hæmorrhage did not occur until at least five hours later. As a matter of fact escape of vitreous in these cases is the result of hæmorrhage not *vice versa*. The sequence is: the patient complains of sharp pain in the eye, vitreous begins to flow copiously a few seconds later and is soon followed by blood. I have seen it occur once on the table after the operation had been completed and no escape had occurred. Indeed in Major Smith's experience it is quite independent of escape of vitreous; and in my solitary case of it, it is likely that if due to the escape (small though the latter was) it would have occurred at the time and not some hours later when the defect had been largely made good by secretion of aqueous; so that we reduce the list of possible evil consequences of escape of vitreous in the series to one, the case of suppuration, and that one is not a remarkable result when we take into account the filthy condition of the conjunctivæ of many of the eyes operated on.

#### IRITIS.

The freedom from iritis is one of the great features of this operation and one that has been observed by every surgeon who has performed it. In the present series of cases there were only four examples of this complication; two of these were very mild and cleared up in a few days under mercury internally and leeches to the temple; the third case was more serious and was longer in subsiding but left good vision eventually. The last one was severe and the result was only perception of moving bodies; it was the case referred to in which there was considerable trouble in extracting the capsule of a lens which burst when being extracted.

Into the much discussed question of the cause of iritis following cataract extraction I do not intend to enter fully here. Suffice it to say that neither of the theories of traumatism or sepsis will hold water. There is considerably more bruising of the iris between the lips and especially the angles of the wound and the emerging complete lens, than there is when only the nucleus is expressed; if due to sepsis why is it that while panophthalmitis has been so reduced by careful asepsis and antisepsis as actually to lead one prominent Indian operator recently to suggest that in the near future the surgeon may be held legally responsible for this rare complication, iritis has not been correspondingly reduced, in fact not reduced at all?

## BAD VISION, I.E., BELOW 6/60.

Eleven cases of this occurred. One was due to dense capsule having been left behind; as the other eye had been done at the same time and the result was excellent, the patient refused to have anything more done. One was due to the above mentioned case of severe iritis following a case very similar to the preceding. One was due to glaucoma; the patient was suffering from glaucoma in both eyes, and as he also had dense cataracts in both eyes, extraction was done in the more promising one but with little hope of securing good vision. One was due to haziness of the cornea which I believe would eventually clear up; in this case too both eyes had been operated on, and as he had good vision in the other, the patient refused to stay in hospital to have the clearing of the cornea hastened by a short course of mercurial treatment. Two were due to panophthalmitis. One to expulsive hæmorrhage. Three to retinal atrophy (as shown by a history of night blindness); one man had this condition in both eyes, the other case had only one eye done, the other not having even the faintest perception of light and so not being a suitable case for operation. One we could find no cause for. So that of these poor results the first two were due to a faulty operation, but they would clear up considerably on the needling of the aftercataract which was the cause of the poor vision; the case of corneal haze would clear up too. Four of the cases, the glaucoma and the three cases of retinal atrophy were not in any way connected with the operation, and so cannot be regarded as results of it, so that even considering the three improvable cases as poor results, the total number in any way connected with the operation was seven, *i. e.*, 2.7 per cent. Capsule was either completely or partially left behind in eight cases. Bursting of the capsule is a serious complication. If left behind it exposes the eye to the risk of iritis and to the necessity of a needling operation, an operation that, in the opinion of many, is more dangerous than the original one, while if extracted in the way to be described later there is liability to escape of vitreous and to iritis and panophthalmitis from too much intraocular manipulation introducing sepsis.

Suppuration occurred in two eyes. One case followed escape of vitreous, the other followed a normal operation. Considering the condition of many of the eyes operated on this is a marvelously small proportion. Amongst the Punjab peasants at least 16 per cent. of the eyes are in such a state of chronic conjunctivi-



tis, usually from trachoma, that rigorous treatment for weeks or months would not put them into a condition in which a European surgeon would touch them. Such treatment is impossible here, a patient will not stay in hospital longer than two days before operation, at the end of that time he leaves to fall into the hands of the *coucher*, whose operation is ruinous to the eyes, either immediately from sepsis, or remotely from atrophy of the retina, which follows the presence in the vitreous of even such an apparently innocuous foreign body as the lens.

The immunity from sepsis is due to two causes; first, the small number of instruments introduced into the eye, and second, the use of a *douche* of 1 in 2,000 mercuric chloride to wash out the conjunctival sac immediately before operation. This *douche* is used from a reservoir about four feet above the patient's head so that a powerful stream is obtained, the germs are thus washed away and the lotion remaining in the sac forms, with the tears, a weak solution which inhibits the growth of any germs that are left. The use of this solution is never followed by any ill effects, there is no doubt that is the cause of a good deal of conjunctival injection seen when the eye is opened on the sixth day, but that always clears up in a few days, and it may also help to cause some of the more marked cases of striped keratitis, also a temporary condition; in only one case have I seen a marked opacity such as is said to follow the use of such a solution and it had all the appearances of an exaggerated type of striped keratitis and in all probability would have cleared up in a few days if the patient had remained in hospital.

The one case of expulsive hæmorrhage has already been discussed. Prolapse of iris undoubtedly occurs somewhat more frequently here than it does in the case of cataract extraction by the old method, but the cause is the want of control these patients have over themselves and that the hospital has over them. During the busy seasons the hospital staff is quite too small to cope with the large number of cases, so the patient has perforce to be left very much in charge of his sick attendant, who is usually a fellow villager or relative of his; the consequence of this is that he may be found out of bed on the second or even the first day and some of them actually remove the bandages every few hours to see how the eyesight is progressing.

Comparing these results with those obtained by the capsulotomy method, we find that the percentage of escape of vitreous (5.1) is almost as low as that obtained by even experienced

operators by the old method, namely, 3.5. Vitreous escape, however, has not the evil effects that follow such an accident in the capsulotomy operation; when it occurs in the latter case the eye is immediately shut up with the capsule and most of the lens matter left behind to cause iritis and irido-cyclitis with probably late detachment of the retina from shrinkage of the inflammatory exudate. By the intra-capsular method all such foreign matter is removed from contact with the iris and vitreous inflammation never occurs, and the result is quite as good as if no such accident had taken place.

The question of iritis hardly admits of comparison at all, it is practically absent in intra-capsular operations, being found only when some such accident as rupture of the lens capsule has occurred; owing to the absence of such accidents in Major Smith's own cases iritis is the rarest of complications.

Poor vision as we have seen resulted in only 2.7 per cent. of my cases (excluding the four fundus conditions and including the three cases that could be improved), it has never been reduced below 7 per cent. by the old operation with needling. By the new method even the good cases show a much higher average of good vision, 6/6 and 6/5 are quite common and the vision of all cases goes on improving for a few months until the wound has cicatrised to its maximum, while in the old operation vision gets gradually worse owing to the increasing opacity of the capsule. One of the greatest advantages of the former operation is the great reduction of cases with visual results between about 6/24 or 6/36 and moving bodies, when they do occur they are due to fundus conditions not to aftereffects of the operation in the form of aftercataract or iritis and its consequences. Such visual result is almost as great a disappointment to the patient as a complete failure, he is unable to read ordinary print or writing or do any work which requires a similar acuteness of vision.

The incidence of detachment of the retina, detachment of the choroid and amount of astigmatism is independent of the nature of the operation and so is not open to comparison. The incidence of sepsis depends on the thoroughness of the preliminary douching, but as there are fewer instruments introduced into the eye, risk is less in the intracapsular operation.

Briefly comparing the relative merits of the two operations, we have the frequent occurrence of iritis in the one, its almost complete absence in the other; the universal after-cataract in the

one with its necessary treatment which is subject to as much risk as the original extraction, and the absence of after-cataract in the other; the easy and very effective solution of the question of the immature lens afforded by years of worry, anxiety and financial loss which ensue before the patient can get relief by the old operation: the frequency of tags of capsule in the wound in the old operation forming a drain which, if not covered by conjunctival flap, is certain to become a septic drain and thus explain the greater frequency of sepsis in the old operation compared with the new and the consequent necessity for making a conjunctival flap, to seal up these tags rapidly, a flap which Captain McKechnie will prove to an absolute demonstration is certain to be followed by more astigmatism than the Jullundur incision which is an approach to a radial one; intra-capsular extraction admits of any incision and owing to the absence of material in the wound which would form a channel for septic organisms, admits of the incision which will be followed by least astigmatism, namely a radial one; the difference in the after treatment of the two cases, in the old operation the eye has to be inspected daily and to receive drops of atropine either on account of the presence of iritis or to anticipate its onset and often to combat iritis the patient has to undergo saturation with mercury, in the intra-capsular operation, the eyes, as a rule, are not touched until from the six to the tenth day when the patient may be given a green shade and allowed to go home. Any surgeon will at once recognize the advantage of the operation which has no after-treatment over the one which is followed by much after-treatment, in short the intra-capsular operation stands at least as far ahead of the old operation as litholapaxy stands ahead of lithotripsy. In litholapaxy the stone is crushed up and evacuated at one sitting, in lithotripsy the stone was crushed up at one or more sittings and the fragments left to be expelled by the forces of nature which meant great inconvenience to the patient and was always followed by a considerable amount of inflammation of the bladder. The Indian surgeons Keegan and Freer disposed of lithotripsy for ever, Indian surgeons will dispose of the incomplete operation for cataract in the same way.

With such advantages to commend it, and such figures as those of the operators who learn this operation under Major Smith, to prove that others can do it almost as well as he can, the operation ought to be a universal one and why it is not so depends on several factors, of which I believe the following are the most important.



The operation is not an easy one, but the difficulty lies, not so much in the operation itself as in the acquiring of proficiency in the various devices which have to be adopted to suit different conditions, here comes in the immense advantage of learning the operation under the instruction of one who is thoroughly acquainted with all its details, who knows from long experience how certain classes of lenses are likely to behave and how accordingly they must be treated, who can view directions as to the amount and the direction of pressure and how and when they must be altered, who knows why certain complications are likely to ensue and how they must be avoided.

Even then it cannot be learned by simply watching such a man doing it and listening to his teaching, it must be practised under his supervision and thus learnt quickly and thoroughly: otherwise proficiency will be gained as the result of bitter experience and probably an evil reputation as a cataract operator, after a large percentage of escape of vitreous, many burst capsules, many failures to accomplish the operation without using unjustifiable force, a few couched lenses, and much reaction in the eye as a result of too much interference with it.

The consequence is that the beginner working by himself concludes that the operation is not practicable and gives it up in disgust or despair, or he selects those cases that his limited experience has taught him are most likely to do best and deprives many a patient of the benefits of the operation, which is feasible enough in all cataracts in adults, if the operator only knew how to do it. The next factor is the assistant, in no other operation in surgery does he play such an important part, it is no exaggeration to say that an untrained or unskilful one will spoil almost as many eyes as an unskilled operator. His duties are just the same as in the old operation until after the iridectomy has been done, the speculum is then taken out and the assistant has to take all pressure off the globe and take care at the same time that he keeps his hands and arms out of the way of the surgeon. He stands at the surgeon's left side and pulls the lower lid downwards by means of the face of his left thumb placed on the cheek just below the lid, a little pad of wool beneath his thumb enables him to maintain a firm hold if the cheek is moist, at the same time he lifts the upper lid straight forward, or forward and slightly downward, never upward as thus the peripheral fibres of the orbicularis would get a chance of exerting pressure on the globe; he does this by means of a hook like a stout stra-

bismus one held between the thumb and the first two fingers of the right hand like a pen in writing, it is held at such a length that the tips of the ring and little fingers fully extended can push the peripheral fibres of the orbicularis upwards on the forehead and keep them there by pressing firmly on the upper margin of the orbit. This, in addition to preventing the orbicularis from getting at the globe, gives a good view of the upper fornix and thus exposes the field of operation, for during the operation the patient is allowed to keep his eye in whatever position he likes and in the great majority of cases he rolls it strongly upwards, in this way there is no trouble with the patients who are unable to look in any required direction or with those who cannot maintain the eye in such a direction, there is also no risk from sudden movements as the eye is invariably maintained in the position first chosen, and the patient's nerve is not shaken by shouting at him or continually giving him directions. The assistant must remember to keep his right wrist strongly fixed to allow the surgeon to get his left arm between the assistant's right arm and the patient's head. This seems a lot of stress to lay on the duty of one who in most operations has a very subordinate part to play, but any person who has experienced the poorer exposure of the field of operation, the more frequent escape of vitreous and the hampering of his left arm by an unskilled or clumsy assistant will soon have any lingering scepticism about the importance of his subordinate banished.

The third point which makes for success is the knowledge of the behavior of lenses according to the stage of their maturity. Contrary to common opinion the order of ease of intracapsular extraction is: (1) immature, (2) intumescent and ripe swollen, (3) hyper-mature shrunken.

The immature lens comes out with the greatest ease; pressure is applied with the end of a spatula held vertically in the left hand like a pen over the lower third of the cornea close to its left margin and with the point of a blunt hook, similar to the one used for raising the upper lid, over the lower third of the cornea between the end of the spatula and the right margin. The direction of the pressure is straight backward towards the optic nerve. The spatula does not move but the point of the hook may be drawn two or three times slowly across the cornea until the lens appears in the wound and is about half delivered, then the pressure of the hook is slackened and its direction gradually changed from backward to upward, so as to fold the corneal

flap under the lens until the latter topples over into the cornea. During this stage the hook exerts gradually less and less backward pressure until at the end the pressure is directed entirely upwards, while the spatula keeps up just enough backward pressure to prevent the lens slipping back into the eye. By this means the lips of the wound are kept close to the lens and there is little room for vitreous to escape even if there were enough pressure to force it out. When the lens topples over, the spatula is taken off the globe and the lens is caught in the hollow of the hook which is pressed well under it so that it is lifted away, not pushed or pulled away by the point of the hook for fear of rupture of the capsule which has still a slight attachment to the zonule. The same means is adopted to take away the lens when, as occasionally happens, it stays between the lips of the wound and does not topple over; only in this case enough pressure is kept up with the point of the spatula to prevent it retreating into the eye until it has been removed from the lips of the wound. These manœuvres, though difficult to describe in an intelligible manner, are always easy in practice, and it is a rare thing indeed for an immature lens to give any trouble. Fortunately for the patient, most Indian operators have recognized this fact, and when a selection is made it is always the immature lens they choose.

Next in order come the intumescent, mature swollen and the Morgagnian which has not undergone much shrinkage. The condition common to these is the swelling of the lens and the stretched and weakened capsule which is extremely likely to burst when the lens is about half out. If such lenses are extracted by the above method, they are dislocated first close to the wound and when the capsule ruptures it is pulled back into the eye by the intact lower part of the zonule and has either to be extracted with forceps or left behind, and we have already considered the risk that the eye runs from either of these procedures.

The following method enables us to overcome the difficulty with these lenses. Apply the spatula and hook as before and first proceed to define the ciliary ridge which can be felt as a hard resisting body when we try to move the hook from the cornea to the sclerotic, then keeping up just enough pressure to prevent the point of the hook slipping over this ridge, pull as if trying to make the patient look down. The effect of this proceeding is to make the zonule rupture below and the lens

tumble upwards so that the lower border comes first through the wound. This pull is kept up until the lower border of the lens begins to appear at the wound, the pressure is then changed gradually from downwards through backward to upward, the point of the hook following the emerging lens and folding the cornea beneath it as before. Rupture is still likely to occur owing to the great delicacy of the capsule, but not so much so as when the upper border comes first, because the attached portion of the zonule being now close to the wound is more directly acted on by the escaping lens and less force is required. Even so many of them still rupture when the lens is half or more out, but as the capsule is now attached above it does not slip back into the eye but remains between the lips of the wound and can be easily lifted away with a pair of dissecting forceps. The method is specially applicable to these swollen lenses as the large amount of fluid matter they contain makes them easily mouldable; it is much more difficult to acquire proficiency in this than in the preceding method and the beginner is likely to fail in making a good many of the swollen lenses turn a somersault upward, but once he has acquired the knack he has completely surmounted the difficulty of delivering these lenses in their capsules, a difficulty that has been the great obstacle to all the methods of intra-capsular extraction and that no one has hitherto succeeded in getting over.

If by some mischance a required capsule retreats into the eye it is dealt with in the following manner: a pair of iris forceps is passed closed into the anterior chamber as close as possible to back of the cornea as the capsule often lies close up to the latter, until the points appear about the centre of the pupil; then the points are allowed to separate as wide as possible, consistent with the size of the pupil, and are driven straight back into the vitreous closed and pulled out, usually they bring the capsule with them either wholly or partially; if the former well and good; if the latter, it is more efficient than any needling later would be. If this fail to catch the capsule let it alone and needle it afterwards; any further manipulation is not advisable, as vitreous is rather likely to escape during these attempts and we have also to always remember the risk of infection that too much intraocular interference carries with it.

Last comes the hypermature shrunken lens.

The operator should recognize that this is a hypermature lens from the fact that the lens and iris are farther back than normal in

the eye: he as a consequence assumes that this is a small shrunken lens. The intumescent cataract is both weak in the capsule and easily extracted probably from its being swollen, the hypermature is both strong in the capsule and strong in its attachment, anyhow it is the most difficult of all lenses to dislocate. In dealing with this, the one object should be to make it turn a somersault in the same way as the intumescent variety; this is not always easily done; if we fail to do it the lens dislocates opposite the middle of the wound and we see that it is dislocated by the point of transparent vitreous in the wound. The moment we see this we cease all efforts to make the lens turn a somersault, but keep up as much pressure with the point of the hook as will keep it in position; we then drop the end of the spatula into the vitreous behind it and continue to drive it out by pressure on the cornea with the blunt hook, on the spatula as an inclined plane, using the spatula merely to support the lens and to prevent the pressure which is being applied to the cornea from acting on the vitreous. If the patient is at all well behaved there should be no escape of vitreous in these cases. Once a hypermature lens dislocates at the wound, if we go on simply pressing we will only succeed in driving out the vitreous, so firmly anchored are these lenses. The object of making this lens turn a somersault is to obviate the introduction of a spatula into the vitreous to remove it.

Another class of lens to which attention should be directed, is what Major Smith calls the "soapy lens." It differs on the one hand from the blush white mother-of-pearl appearance of the intumescent lens and on the other from the opaque milky white of the mature or hypermature swollen lens. It is very well described by saying that it has the appearance of ordinary coarse white soap. Such a lens has a very tough zonule and is very difficult to dislocate: fortunately, however, it is very rare.

There is one important point in the behavior of the patient bearing on the success of the operation, namely, that a patient who looks down during the operation is much more likely to have escape of vitreous than one who looks up. I think this is due to the eye being in a strained position (the eye when at rest turns upwards) and so there is likely to be greater intra-ocular pressure, but perhaps the manipulations are not so skilfully performed in this very unusual position.

A very well marked feature of the operation and one rather difficult to account for is the much greater liability to escape of vitreous in prominent eyes when all pressure has been taken off



the globe than in those that lie deeply in the orbit. Such, I believe, are the main considerations bearing on the successful performance of the operation, which has no terrors for any one who has had enough experience, has a good assistant and knows how to vary his methods according to the varying conditions he finds.

The opponents have obtained their arguments from two sources; from those who without any preliminary teaching and experience have tried the operation and got such results as up to forty per cent. of escape of vitreous, large numbers of burst capsules, delayed healing, etc.; such statistics are not a fair criterion of the value of the operation; they have been obtained by novices at a difficult and extremely tricky operation and for future comparison the figures of those who have learnt the operation from Major Smith should be cited instead.

The second source of supply has been from the records of more timid operators who have tried intra-capsular extraction of shrunken lenses because the thickened capsule and thinned zonule were supposed to make these cases particularly suitable, the same objection applies to these figures as to those of the first set and in addition the experiments have been tried on the most unsuitable condition of lens for this operation.

These arguments have been mainly along two lines; first the accidents that are liable to happen at the time of operation, and secondly, the remote result of such accidents; the answer to the first is that such accidents as escape of vitreous and rupture of the capsule are extremely likely to occur with the novice, but with increased experience in the proper performance of the operation they become less and less frequent and there is no reason why any Indian operator should not obtain almost as good results as those of Major Smith himself.

The answer to the second will be supplied by Captain Lister's paper\* on the after results of cases of escape of vitreous, which should banish once and for all the extreme terror that ophthalmic surgeons have hitherto held for what they consider the worst complication next to expulsive hæmorrhage that can occur in the course of a cataract operation.

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\*This, the third paper on the subject read at the Bombay Congress, will appear in our August number.

## MEDICAL SOCIETIES.

### THE OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

May 6th, 1909.

The President, Mr. Marcus Gunn, in the chair.

#### CARD EXHIBITS.

Major Elliot:—

- (a) An Evisceration Spoon.
- (b) An Optic Nerve Hook for use in the Operation of Optico-Ciliary Neurectomy.
- (c) An Elevator for use in Extirpation of the Lacrimal Sac.

With regard to the Optic Nerve Hook, the blade of the instrument is 5 cm. long, and the handle is 10 cm. The curve of the blade has been moulded on the antero-posterior curve of an average eye, and corresponds to a little less than half the circumference. At its extremity it is bent back 4 mm. in a curve whose opening has been so graduated that it will admit and hold firmly the optic nerve.

#### *A Case of Congenital Anterior Staphyloma in a Baby.*—Mr. S. Stephenson.

Thomas H. was born March 23rd, 1909, under perfectly normal conditions without any instrumental assistance. The mother, when 3 months pregnant, was under treatment for a short time as a result of some boiling bacon fat splashing into her eyes. The baby weighed  $4\frac{1}{4}$  pounds. Each palpebral aperture was found to be occupied by a globular, fleshy protrusion, in which no trace of cornea was visible; that on the left side was somewhat the larger. Both masses moved well in the usual directions; they were never covered by the lids.

The palpebral fissure extended outwards beyond the normal extent.

Accompanying this ocular condition, there were present other malformations, viz:

1. Microcephalus.

2. Hairs growing from the posterior surface of the ear and the helix.
3. Absence of the right testicle from the scrotum.
4. Little finger small and incurved.
5. No movement in the hip-joint; patella apparently absent, and knees cannot be flexed.

*An Unusual Appearance of the Optic Disc, the result of a Previous Papillitis.*—Mr. G. Winfield Roll.

K. W., aged 6, came with history of defective sight in the left eye, which was believed to have existed since birth. The only illness had been a severe attack of measles in December, 1908. There had been 4 other children, the first one only surviving 36 hours, while 3 other children showed no defect.

The whole of the disc seems larger than usual, with shallow depression of the surface and of a greyish color; the centre of the disc is occupied by a whitish grey mass of irregular outline, and around the margin is a ring of choroidal atrophy with well-defined limits. The retinal vessels make exit in a fairly regular fashion all round the circumference of the disc, and a group of them, up and in, show white lines accompanying them. There is also some fine choroidal disturbance with pigmentation just above the disc. The other eye was normal.

The President considered this case was probably an acute congenital condition, resembling what followed intrauterine choroidal changes associated with neuritis.

*A Case of Nodular Leprosy affecting the Eyes.*—Mr. E. Treacher Collins.

This patient, aged 5, and his father, were both the subjects of leprosy, contracted, probably from a woman in the same house, who had lately come from Riga afflicted with the disease. The father (aged 40) had suffered for 5 years, and the boy for 2 years, but in the latter it advanced much more rapidly than in the former. Naturally a bright, lively boy, he had become of late dull and apathetic. Numerous nodules were found all over the body, on the arms, legs, buttocks, back, and skin of the face. In the right eye were 2 long, yellowish swellings with blood-vessels on them at the upper and lower margins of the cornea; each extended some distance over the front of the cornea and only a narrow

strip of semi-opaque corneal tissue remained unaffected between them. V.=counting fingers at 1 metre.

In the left eye a similar yellowish swelling was seen at the lower margin of the cornea extending some distance into it. The iris was discolored and had some small yellowish nodules in it near the pupillary border up and out, and there were numerous posterior synechiæ. The vision=doubtful P.L.

Examination of sections and smears from a nodule on the leg showed the typical appearance of leprosy with an enormous number of acid-fast bacilli.

*Symmetrical Circumferential Encroachment on the Cornea by the Limbus of the Conjunctiva in the Two Eyes, with an Arcus Senilis Inside the Limbus; the Patient being also the Subject of Progressive Ptosis.*—Mr. E. Treacher Collins.

Mrs. M. B. came for advice on April 29th, 1909, suffering from defective sight and inability to open the eyes. She had never been able to open the eyes properly, but this difficulty had increased considerably during the last 30 years, as shown by photographs taken at intervening periods. The ptosis was more marked on the left side than on the right, and there was some sinking in of the skin immediately beneath the upper margin of the orbits indicating some absorption of orbital fat.

Both corneæ showed symmetrical changes, a central oval portion alone preserving its transparency. The boundaries of the normal cornea could be made out though of an opaque and greyish appearance. Blood-vessels proceeded over the cornea from the conjunctiva. An opaque ring, like an arcus senilis, bounded the greyish area all round and was separated from the peripheral opacity by a semi-clear space like that seen with a normal arcus. There were some central lens opacities, and the vision was 6/12 with correction in the right and 6/12 pt. in the left.

Cases of progressive bilateral ptosis have been described by Fuchs (*Arch. für Ophth.*, xxxvii, p. 234), all 5 being females. Beyond this, Mr. Collins could only recall one case of a similar nature, described and figured in the *Trans. of Ophth. Society*, vol. xxiv, p. 45, in a man aged 21.

Mr. Holmes Spicer considered that the whole condition might be of congenital origin.

## PAPERS.

*A Short Note on Tubercle of the Choroid, with an Account of a Recent Case.*—Dr. George Carpenter.

This paper related to five cases under Dr. Carpenter's care at the Queen's Hospital for Children, but the one specially referred to in the title could not be brought up for examination owing to the fact that the child had recently developed dangerous symptoms and was becoming comatose. Accompanying the paper excellent colored drawings were shown to illustrate the various points.

Dr. Carpenter entered minutely into the description of the ophthalmoscopic appearances of the tubercles, dealing more especially with the pigmentation accompanying the choroidal exudation, and comparing the features noticed in tubercular and in syphilitic types of inflammation of the choroid, both recent and old; and he came to the following conclusions, some of which he had expressed before, both from his own observations and from those in conjunction with Mr. Sydney Stephenson.

(1) Acute miliary tubercle of the choroid can be commonly found by those who take the trouble to look for it.

(2) That the presence of choroidal tubercles by no means invariably indicates the existence of a general tubercular infection.

(3) That fine retinal pigment is a common ophthalmoscopic appearance over the surface of the tubercle.

(4) That miliary tubercles do not generally grow perceptibly larger, nor are there in these cases fresh deposits occurring within a few days, as stated by Fuchs.

(5) That miliary tubercle is generally situated in the central region of the fundus, and the spots are as a rule of small size, discrete, and limited to one eye.

(6) That chronic tubercular choroiditis cannot be distinguished from similar syphilitic choroiditis by ophthalmoscopic examination alone.

(7) That tubercle of the choroid may be met with in any form of tuberculosis, whether it be acute, chronic, or obsolescent.

Dr. Batten enquired what was Dr. Carpenter's opinion with regard to the percentage of tubercle in the choroid found in cases of tuberculosis, his impression being that it was not more than 10 per cent., whereas the examination of the cerebro-spinal fluid gave positive results in 70—80 per cent. of the cases, thus establishing the higher diagnostic value of lumbar puncture.



Dr. Carpenter, in reply, stated that from his experience he should have placed the percentage of tubercles found in the choroid at more like 50 per cent.

*A Case of Spring Catarrh Treated and Cured by Radium.*—  
Messrs. McKenzie Davidson and Arnold Lawson.

A boy, aged 12, was first seen in April, 1905, suffering from lachrimation and slight conjunctival discharge which had lasted nearly a year. On examination, there appeared the typical flat-topped elevations of spring catarrh scattered in great numbers all over the palpebral conjunctiva, with a good deal of reddening and some viscid discharge. The bulbar conjunctiva was healthy, there was no pain, and the cornea was quite clear, but the irritability was most marked in the morning. Eosinophile bodies were found in great abundance in the conjunctival secretion. The treatment at first adopted of complete rest for the eyes, with 4 per cent. yellow oxide of mercury ointment, only made the condition worse, so that 2 gr. to the ℥i copper drops were substituted, which appeared to give considerable relief for a time. Four months later, after a visit to the seaside, there was great exacerbation of the symptoms, but the condition responded again to treatment, so that there was a temporary improvement until January, 1906.

As there appeared no sign of the catarrh yielding to the methods of treatment so far employed, it was decided to try cautiously the effect of radium; and at first the left eye, being the worse of the two, was subjected to exposure while the right eye was left alone. In all, 8 sittings were given between February 6th, 1906, and January 9th, 1907, both eyes being treated except on the first occasion; 44 milligrams of radium being applied for periods varying from 5—15 minutes, generally the latter. The condition began to show immediate signs of improvement, and at the end of the time stated both conjunctivæ were perfectly cured, and all the enlarged papillæ had completely disappeared. During the whole of 1907 the boy was kept under observation and went to school as usual. He was last seen on January 12th, 1909, when no trace of recurrence was visible; there was slight irregular coloration of the conjunctiva, and that covering the tarsus was yellowish-white and bloodless. Judging from the few cases which he had treated in this way Mr. Lawson considered that more successful results followed few sittings and a comparatively large dose of radium, rather than frequent sittings with a smaller dose of the salt.

Mr. McKenzie Davidson remarked that the difficulty was to get enough radium and the correct dosage; and another important point was to filter off those rays which were not required.

*On the Disappearance of the Iris from the Pupillary Area, following Injury.*—Mr. M. S. Mayou.

Mr. Mayou, in this paper, explained that disappearance of the whole or parts of the iris as a result of injury had been frequently noticed, and was due to many causes, but the one he specially wished to refer to was the retraction of the iris into the angle of the anterior chamber owing to organization of fibrous tissue, giving rise to an apparent aniridia. The best known causes of disappearance of the iris were: (1) Incarceration in a scleral wound; (2) Avulsion of the iris in the rupture of the globe, caused by forcible expulsion of the aqueous; (3) Retroflexion of the iris, and (4) Rupture of the ligamentum pectinatum, cases of which have been described by Mr. Treacher Collins, in 1892, and by Buchanan and Müller.

Mr. Mayou gave the description of 3 cases which had occurred lately at the Central London Ophthalmic Hospital. The pathological examination of the different eyes had been made by himself, and photographs of the sections were placed on the screen. He also gave notes of one other similar case which had occurred under the care of Mr. Treacher Collins in 1890.

In all of these cases pathological changes of much the same type were found in all the sections, some perhaps rather more extensive than others. All were the results of penetrating injuries, and in two of them the foreign body was discovered in the eye; the injury had always been followed by cyclitis; and in each case the lens had been wholly or partially dislocated. One of the eyes was removed 48 years after the injury; in the upper and outer part of the globe in the ciliary region a scar was visible. In the anterior chamber was a white mass, the calcified remains of the lens. On one side the ciliary body was in its normal situation, while on the inner side it was retracted to near the equator; the iris was pulled over to the side and was adherent to the calcareous lens. In some of the cases the iris was retracted and folded, owing to the development of much fibrous tissue, so that the pupillary margin only just reached forward to the corneo-scleral junction, and there was marked ectopia, with pigmentary proliferation on the anterior surface of the iris. The angle of the anterior chamber was mostly occluded, but it is

to be noted that although this is the case there is never any rise of tension; this is probably due to the fact that in these cases there is generally separation of the choroid at the anterior part of the eye opening up the supra-choroidal space, as well as a gap in the suspensory ligament following the dislocation of the lens. It was also observed that in this type of case the retina is usually detached and very often cystic.

*The Abuse of Atropine in Refraction Work.*—Mr. R. R. Cruise.

This paper dealt with 140 cases examined with a view to test the efficacy of homatropine and cocaine compared with atropine in refraction work in the case of children up to 16 years of age. Seventy of these cases were tested under homatropine and cocaine (watery solution) in the strength of 1 per cent. of the former and 2 per cent. of the latter, the other 70 were treated with 2 per cent. of each.

The method of procedure was as follows: (1) Vision taken and recorded; (2) Homatropine and cocaine instilled 4 times in an hour; (3) Retinoscopy performed; (4) Subjective test applied and result recorded; (5) Atropine ointment 1 per cent. was prescribed for home use, 3 times a day for 3 days; (6) Retinoscopy again performed; (7) Subjective test based on retinoscopy and result recorded.

Mr. Cruise found that out of the first 70 cases, the results under homatropine and cocaine were exactly the same as under atropine in 52; in 4 the amount of refractive error was greater under homatropine and cocaine, and in 14 greater under atropine. In the second half of the cases, treated with 2 per cent. of homatropine and cocaine, the results were 22 greater under homatropine and cocaine, and 3 under atropine.

In 20 cases he also estimated the distance of the near point, first under homatropine and cocaine, and then under atropine, using a +2D sphere in addition to the correcting glass for bringing the near point within measurable distance; and he found accommodation more thoroughly paralysed under homatropine and cocaine than under atropine.

From these experiments he was perfectly convinced of the greater value of homatropine and cocaine compared with atropine as a cycloplegic in refraction work.

MALCOLM L. HEPBURN.

## ABSTRACTS FROM MEDICAL LITERATURE.

BY J. F. SHOEMAKER, M.D.,

ST. LOUIS, MO.

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### OPHTHALMIA NEONATORUM.

Frederick Krauss (*N. Y. Med. Jour.*, May 15, 1909,) recommends, as a prophylactic, the use of a two per cent. solution of nitrate of silver in the eyes of all new born babes in which it is suspected that a gonococcus infection may have taken place, believing that the solutions of the organic salts of silver are not so efficacious and should not be substituted for the silver nitrate solution. The curative treatment which he uses and recommends consists of: 1. Thorough cleansing; 2, silver nitrate; 3, compresses, cold and hot; 4, solution of organic silver; 5, atropine if the cornea is affected.

1. Thorough cleansing is best obtained by the use of a proper soft rubber syringe and the free use of a boric acid or weak potassium permanganate solution. This solution should be used not less than every hour, day and night. Constant attendance is a necessity. The nurse should be instructed about careful separation of the lids, and the necessity of the flushing of the conjunctival sac.

2. Silver nitrate should be applied by the physician himself once or twice daily, according to the amount of the discharge. As the discharge lessens, it can be done every second day, but early cessation of the silver solution will bring a recrudescence in many cases. To apply the silver solution properly, the lids are everted, which is easily accomplished by traction along the lid margins with the finger tips. A ten grain to the ounce solution of silver nitrate is applied to the everted lids by means of a cotton swab, being careful to apply the same thoroughly in the conjunctival fornix. Have a second swab wet with normal salt solution conveniently ready and apply the same at once to the everted lids.

3. The question of hot or cold compresses is rather confusing. Formerly ice compresses were used freely with the result that if applied too zealously the cornea would be deprived of its vitality and develop opacity. Intermittent ice compresses are of great service in the early stages, but judgment should be used by the

physician. Hot compresses in the later stages applied for a short time daily, seem to assist in clearing corneal opacities. The applications of compresses are of value also because they keep the lids from adhering to some extent by their moisture, thus allowing of the exit of the pus.

4. Constant bathing of the eyes with a twenty to twenty-five per cent. solution of organic silver solution seems to be of some value and should be used in every case. One drop instilled after every cleansing of the eye is most satisfactory. In this way, the eye is constantly bathed in a solution that is mildly antiseptic, and has sufficient color to allow us to watch its diffusion.

5. Should the cornea become hazy, atropin (g. ii. to ʒi) should be dropped into the affected eye two or three times daily and every bright light excluded from the room.

#### TREATMENT OF OBSTRUCTION OF THE LACRIMAL DUCT.

J. C. Berry (*Boston Med. and Surg. Jour.*, April 29, 1909,) epitomizes his observations on the treatment of obstruction of the lacrimal duct as follows:

##### 1. In Infants—

1. Ordinary cases of dacryocystitis in infants require no treatment other than nasal cleanliness, boracic acid collyria and slight pressure over the sac.

2. More persistent cases may require nasal aspiration or possibly the passage of the lacrimal probe.

3. Obstruction is sometimes due to membranous closure of the nasal end of the canal.

4. Intranasal inspection is always prudent and at times necessary when probing the duct.

5. The seton is a remedial measure of great promise in certain rebellious cases.

##### 2. In Adults—

1. The ideal treatment is by gradual dilatation, avoiding violence to the membrane of the canal.

2. If this proves unsuccessful, then division of the stricture with rapid and full dilatation is necessary.

3. Dilatation beyond 2 mm. (Bowman's probe No. 8) is seldom necessary. Forced dilatation to 4mm. (Theobald No. 16) exposes the eye to nasal contamination and lessens the propulsive power of the sac.

4. The leaden style can be employed to advantage between



treatments, reducing the frequency of probing and favoring absorption of hypertrophied tissue by continuous pressure.

5. Acute cases of inflammation of the sac can be aborted if seen early, the treatment being to wash out the sac, inject argyrol and follow with hot stupes of lead and laudanum, general antiphlogistic treatment being observed.

6. Following phlegmon, the passage of the probe should be delayed until swelling and induration subside.

#### HÆMORRHAGE IN THE EYE IN THE NEW-BORN.

Stumpf and von Sicherer (*Beiträge zur Geburtshilfe und Gynäkologie*, Vol. XIII, No. 3) found hæmorrhage in the retina or optic nerve in 42 out of 200 children examined shortly after birth, and conclude that the pressure during delivery is sufficient in many cases to cause hæmorrhage by the congestion produced. Interference with the circulation is the usual cause of the trouble and the authors question if it might not later lead to the development of glioma. They state that such hæmorrhages are especially likely to occur in cases of premature delivery or under other circumstances where the blood vessels have not reached their full development or may be fragile from any cause. The pressure on the head from the soft parts of the birth canal is doubtless the cause.

#### RETINAL HÆMORRHAGES AND ARTERIAL HYPERTENSION.

E. M. Blake (*Yale Med. Jour.*, April, 1909) says that retinal hæmorrhage may be grouped in four types: (1) Simple hæmorrhage into the fiber layer of the retina; (2) hæmorrhagic retinitis, that is hæmorrhage with some œdema and exudates in the retina; (3) subhyaloid, a hæmorrhage between the retina and the hyaloid membrane covering the vitreous; (4) vitreous hæmorrhage, an extravasation sufficient to burst into the vitreous humor. Middle aged patients who complain of the vision of one or both eyes suddenly becoming blurred should not be told that the trouble will soon disappear, but a careful ophthalmoscopic examination should be made with dilated pupils and hæmorrhages or other evidences of arteriosclerosis should be sought. Three of the earliest definite signs of sclerosis are: the corkscrew appearance of the twigs at the macula and periphery; flattening of the veins by the arteries; and the dull red congestion of the nerve head. Reber believes this last sign indicates an advanced stage of sclerosis. A retinal hæmorrhage means more than a

disturbance of the vision. It indicates a profound disturbance of bodily function, and its association with diseased conditions of the circulatory system emphasises the close relation between ophthalmology and internal medicine. When the first evidences of vascular changes are found by the ophthalmologist, as they often are, the case should be seen by an internist and carefully studied by him, the urine, blood, and especially blood pressure, being carefully examined. A change of life and the proper use of medicines may prevent serious accidents to the patient and give him added years of useful life.

#### HISTOLOGICAL INVESTIGATION OF A CASE OF BLEPHARO-CONJUNCTIVITIS CAUSED BY THE DIPLOBACILLUS OF MORAX-AXENFELD.

Brown Pusey (*Trans. Am. Oph. Soc.*, 1908) has made a most thorough and careful histopathological study of a case of blepharo-conjunctivitis caused by the Morax-Axenfeld diplobacillus. A large number of sections taken from the edges of the lids, the tarsal conjunctiva, the transitional fold, and the bulbar conjunctiva were examined. The author summarizes his findings thus:

In the lid edges there is an invasion of the deeper tissue by epithelial cells in the form of cone-like ingrowths; the superficial pavement layer of cells is thinner than normal at the posterior edges of the lids and these cells do not show keratohyalin changes; the glands emptying on the lid edges are unaffected. The conjunctiva of the tarsus is much thickened and in it there are folds and tubules; there is great desquamation of epithelial cells and the epithelial cells show a moderate tendency to undergo mucoid changes; within the folds and tubules there are diplobacilli; there are diplobacilli between the superficial cells of the epithelial cell layer; wandering cells in large numbers are found between the cells of the epithelial cell layer; the subepithelial tissue of this region is fairly vascular and is the seat of a diffuse infiltration of new cells of which cells plasma cells are the predominating ones; no bacteria are found in the subepithelial tissue. The epithelial cell layer of the transitional folds shows a great increase in cells and the cells show a very marked tendency to undergo mucoid change; there is marked desquamation of cells but at no place is there complete desquamation of cells as in some other forms of conjunctivitis; desquamated cells and debris appear to be held in contact with the epithelial cell layer

by means of mucoid shreds which remain adherent to mucoid cells which in turn hold their position in the epithelial cell layer; in this debris and other debris in the folds of the conjunctival sac there are Morax-Axenfeld diplobacilli; between the superficial cells of the epithelial cell layer there are Morax-Axenfeld diplobacilli; the subepithelial tissue of this region is like that of the similar region of the tarsus. The epithelial cell layer of the bulb shows a moderate tendency to undergo mucoid change; along the surface debris adheres as on the surface of the conjunctiva of the transitional fold and in this debris there are Morax-Axenfeld diplobacilli in abundance; between the superficial cells of the epithelial cell layer there are diplobacilli; the subepithelial tissue of this region is like that of the similar region of the tarsus but much less involved. At the limbus in the episcleral tissue there are epithelial cell ingrowths which show necrotic areas.

The only previous study of this kind was that of Stock, whose findings are largely confirmed by those of the author. Pusey, however, supplies additional information. For example, Stock found no bacteria in his tissue, due to the process of preparation, he explained. The finding of the bacteria in the different parts of the tissue by Pusey leaves no doubt of their being present in the tissue. Again, he confirms Mayou's statement that the new cells found in the mucosa, and by Stock called round cells, are plasma cells. Pusey found evidences that the glands of Krause were involved, a fact not spoken of by Stock, and which Pusey thinks may explain why it is so difficult to rid the conjunctival sac of these organisms, as these glands have long ducts so that remedies applied to the conjunctival sac cannot reach them. The author attaches considerable importance to the finding of ingrowths of epithelial cells at the limbus and the necrosis of the cells. He believes this may explain the frequent occurrence of circumcorneal ulcers in this and other forms of chronic conjunctivitis.

#### NEUORETINITIS DUE TO TYPHOID FEVER.

Joseph V. Clothier (*N. Y. Med. Jour.*, April 10, 1909,) reports a case of neuroretinitis caused by typhoid fever in a girl sixteen years of age. He refers to several cases of this kind reported by Carpenter, Reitter and Lauber, and Sourdille, but this complication of typhoid fever evidently is not common. In this case the optic nerves and retinae were found normal by

Clothier, during an examination of the patient's refraction a short time previous to the attack of typhoid. He briefly describes the course of the fever and the eye complication as follows:

Patient was taken ill on December 24th, but did not take to her bed until January 1st. Blood examination gave positive Widal reaction. Patient had typical typhoid course until January 6th, when she complained that light hurt her eyes. The following day she was unable to recognize her attending physician and her own family. She could recognize the form but not the face or color of the individuals, and complained that everything looked black to her. Ophthalmoscopic examination showed bilateral neuroretinitis. Papilla was swollen, outline obscured, vessels were partly concealed and veins full and somewhat tortuous. The macular region was cloudy, with some faint radiating striæ to disc side of macula. The temperature gradually declined with corresponding subsidence of the papillitis and improvement of vision. On January 21st she had a relapse of the febrile condition, but the vision steadily improved.

The patient was out of bed about February 18th. Repeated urinalyses showed no albumin, and only a slight trace of indican.

Present condition: Vision O. D. 5/22, O. S. 5/15, with old correction 5/12 and 5/9. Ophthalmoscope showed swelling of disc had subsided, temporal and nasal margin of disc was fairly well defined, superior and inferior borders still partly obscured. In the macula were some faint radiating striæ still present. Vessels were of nearly normal calibre.

#### A DESCRIPTION OF CASES OF SHRINKAGE OF THE EYEBALL WITH REMARKS ON THE PROCESSES UNDERLYING ATROPHIA BULBI IN GENERAL.

W. Gordon M. Byers (*Trans. Am. Oph. Soc.*, 1908,) refers to the usual appearance of the atrophied eyeball—macroscopically, characteristically squared, with frequently a buckling behind the insertion of the extrinsic muscles. On section the cornea is often found diminished in size and decidedly crinkled, the retina detached, adhering only at its fixed points and in contact with the posterior surface of the lens in front. Frequently the ciliary body and anterior part of the chorioid are separated from the sclerotic and an exudate fills the subretinal space. Microscopically, the most striking feature is the newly-formed fibrous connective tissue in the region of the ciliary body and crystalline

lens, no doubt the product of inflammation in the front part of the uveal tract. Authorities seem to attribute the changes which take place in atrophía bulbi to the contraction of these fibrous bands. Byers, however, has examined and studied two shrunken globes where these connective tissue bands were absent or so slight that he could not believe it possible for them to produce the changes which had taken place. He refers to Schirmer's views as to the cause of shrinkage and from his study of his two cases concludes:

Atrophía bulbi is not due solely to the contraction of fibrous tissue bands, but to several different causes. Chief among these is an inflammatory arrest of secretion from the ciliary body, which leads, not only as Schirmer has pointed out, to a diminution in the amount of the intraocular fluids, but, along with other less important factors, to a nutritional death of the vitreous. Consecutive to shrinkage of the vitreous, the macroscopical changes observable in atrophía bulbi occur in a more or less purely mechanical way, and are attributable, in an indeterminable degree only, to the contraction of the fibrous tissue bands, the distribution of which, in this condition, is largely determined by the morbid arrangement of the parts.

#### SCISSORS-MAGNET EXTRACTION OF IRON FROM EYEBALL.

Edward Jackson (*Jour. A. M. A.*, June 19, 1909,) has had difficulty in removing with the giant magnet or the large hand magnet, particles of iron or steel that have remained in the eye for any considerable length of time. He refers to the experience of different ophthalmologists who have written on the subject and quotes Haab as giving the following reasons for failure in magnet extraction: 1. The foreign body was seated too firmly in the back wall of the globe or had pierced it completely. 2. The splinter was seated in the ciliary body at first or was drawn there by mistake. 3. The splinter had produced fibrinous-purulent exudation which, according to my experience, greatly hinders its movability. 4. The splinter had been healed over in the course of months or years. To make it possible to remove particles of iron embedded in recent exudate or organized tissue Jackson conceived the idea of introducing a pair of blunt pointed scissors into the incision made over the foreign body which has been located by the X-ray method. After introducing the scissors as nearly as possible to the piece of iron he places the round



end of the core of the magnet in contact with the point of the scissors and turns on the current after which he makes a number of short snips. Then he withdraws the scissors with the magnet still in contact with them, hoping to find the piece of iron clinging to the scissors. He reports two cases in which he was entirely successful, one in which a fragment of steel had been in the eye over five months with beginning siderosis and the other in which a fragment of steel had been in the eye three years with beginning siderosis.

Attempts to remove with both the giant and hand magnet had failed in the first case and an attempt to remove with the hand magnet had failed in the second. He concludes his article thus:

In the two cases reported the scissors used were curved on the flat and had fine but slightly blunted points. It is important that the contact with the tip of the magnet should be made at the point of the scissors, where the attraction of the magnet for the scissors will cause little or no interference with the necessary movements for snipping. The scissors should be introduced so that their tips are a very little short of the position of the foreign body; and the magnet tip should be brought in full contact with them and in the proper position before the current is turned on. Then the magnetic attraction will force the intervening tissue between the tips of the scissors and hold it there. Snipping first causes the opening of a passage to the foreign body. Later, as the foreign body tends to slip on the blades of the scissors, the repeated cuts divide bands of tissue that tend to retain it. It is conceivable that a fragment of iron or steel might be in such shape as to require to be thus freed on both sides before it could be withdrawn; but generally the movements of the scissors tip will so disturb its position that reintroduction in a somewhat different direction will not be necessary.

PRELIMINARY PROGRAM OF THE AMERICAN  
ACADEMY OF OPHTHALMOLOGY AND  
OTO-LARYNGOLOGY FOR THE NEW YORK  
MEETING, OCTOBER 4, 5, 6, 1909.

Headquarters: Hotel Astor, Times Square.

The following is a Preliminary Program for the New York Meeting of this Academy. The Official Program is to appear at a subsequent time and will announce the regular order of the reading of papers and other business.

There will be a two-day session. The whole of the third day will be devoted to operative clinics and demonstrations to be held by the New York members at the various hospitals and medical institutions. A series of clinics will also be given by the Philadelphia members the following Monday and Tuesday, October 11th and 12th. Full particulars of these various clinics will be published later; so also the entertainments which are to be extended to the members while in New York.

The headquarters for the Academy are to be at the Hotel Astor, Times Square. All meetings will be held there. It is advisable that members make hotel reservations now, as the Hudson-Fulton Celebration, which also takes place at this time, will cause a large demand for Hotel accommodations. "The early bird catches the worm," therefore, write the Hotel and secure your accommodations in time.

PAPERS AND ADDRESSES.

1. President's Address—Dr. Otto J. Stein, Chicago, Ill.
2. Vice-President's Address—Dr. Percy Fridenberg, New York City.
3. Address on Ophthalmology—Dr. Santos Fernandez, Havana, Cuba.
4. Address on Laryngology—Prof. John Sendziak, Warsaw, Russia.
5. Address on Rhinology—Prof. A. Onodi, Budapest, Hungary.
6. A Symposium on the Social, Hygienic and Economic Aspect of the Eye, Ear, Nose and Throat:  
Eye—Dr. H. V. Würdemann, Seattle, Wash.  
Ear—Dr. C. J. Blake, Boston, Mass.  
Nose—Dr. J. J. Kyle, Indianapolis, Ind.  
Throat—Dr. W. A. Wells, Washington, D. C.
7. Stereopticon Demonstration of the Anatomy and Pathology

- of the Orbit and Sinuses—Dr. Geo. D. Dixon, New York City.
8. Diabetic Amblyopia—Dr. Wendell Reber, Philadelphia, Pa.
  9. Stereopticon Demonstration of the Relation of the Optic Nerve to the Accessory Sinuses of the Nose—Dr. Hanau Loeb, St. Louis, Mo.
  10. A Case of Bilateral Palsy of the Third Nerve—Dr. T. B. Schneideman, Philadelphia, Pa.
  11. A Discussion of the Various Inflammations of the Ethmoid Bone as Advanced by Uffenorde in His Work, "Die Erkrankungen des Siebbeins"—Dr. Ross H. Skillern, Philadelphia, Pa.
  12. Do the Wounds of the Iris Close after Iridectomy?—Dr. Adolf Alt, St. Louis, Mo.
  13. The Ocular Symptoms of Sinus Diseases—Dr. W. C. Posey, Philadelphia, Pa.
  14. Some Clinical Observations on Sympathetic Ophthalmia—Dr. Dunbar Roy, Atlanta, Ga.
  15. The Operative Indications of Sinus Diseases—Dr. W. L. Ballenger, Chicago, Ill.
  16. Some Further Studies on the Nature and Treatment of Pterygia—Dr. Jno. McReynolds, Dallas, Texas.
  17. Atresia of the External Auditory Canal—Dr. Edgar J. Forsyth, Buffalo, N. Y.
  18. A study of Heterotropia and Heterophoria in Duction and Version—Dr. F. Lauder, Cleveland, Ohio.
  19. The Comparative Methods of the Different Mastoid Operations—Dr. Jos. C. Beck, Chicago, Ill.
  20. Evolution of the Eye Movements and the Genesis of Nystagmus—Dr. Alexander Duane, New York City.
  21. Demonstration of My Nasal Splint—Dr. W. W. Carter, New York City.
  22. The Operative Treatment of Strabismus—Dr. Howard F. Hansell, Philadelphia, Pa.
  23. Laryngeal Neoplasms—Dr. J. Leslie Davis, Philadelphia, Pa.
  24. Report of Two Cases of Torticollis—Dr. Victor Ray, Cincinnati, Ohio.
  25. Tarsectomy in Trachoma—Dr. Mortimer Frank, Chicago, Ill.
  26. Voice Development, Influence on Ear, i.e., Otosclerosis—Dr. A. G. Bryant, Boston, Mass.

27. Lacrimal Obstructions—Demonstrations—Dr. H. Jarecky, New York City.
28. The Recognition and Measurement of Low Degrees of Astigmatism—Dr. Edward Jackson, Denver, Colo.
29. Differential Diagnosis of Labyrinthine, Middle Ear, and Cerebellar Disease—Dr. J. Holinger, Chicago, Ill.

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REVIEWS.

DISEASES OF THE EYE. By M. Stephen Mayou, F.R.C.S. With 119 original illustrations and 8 color plates. London. Henry Frowde. Oxford University Press. Hodder & Stoughton, Warwick Square, E. C.

This adds another one to the list of excellent modern text-books on eye diseases. As it is chiefly intended for the student, it gives with preference facts known, or at least more generally accepted, instead of theories. Anatomy and pathological anatomy are given in detail when thought necessary for better explanation. The illustrations, especially the microphotographs are good. Altogether it is a handsome, handy and very satisfactory text-book.

GENERALREGISTER DER OPHTHALMOLOGISCHEN ARBEITEN IM CORRESPONDENZBLATT FUER SCHWEIZER AERZTE. (General Index of the Ophthalmological Papers published in the Correspondenzblatt fuer Schweizer Aerzte.) From 1871 to 1906. Von D. Alfred Albert Dutoit. Basel, 1909. Benno Schwabe & Co.

Since a great many of the papers published by prominent Swiss ophthalmologists are more or less hidden in this general medical Swiss journal, we have to thank the author for his very complete work by which he has not only shown the very considerable amount of ophthalmic writing done by the Swiss oculists, but also given every one a chance to find each article when needed for reference.

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